LifeNet Health®
Saving Lives. Restoring Health. Giving Hope.

January 25, 2016

Stan Ohrablo
Air Permit Writer
Department of Environmental Quality
Tidewater Regional Office
5636 Southern Boulevard
Virginia Beach, Virginia 23462

Location: Virginia Beach
Registration No.: 91035

Dear Mr. Ohrablo:

This letter is to provide the additional information requested in the permit application deficiency letter dated January 12, 2016. Each of the points outlined in the deficiency letter are addressed below:

- Document Certification (page 7 of the application) signed by a responsible official.
  - Signed by Michael Porter, Director of Corporate Support, LifeNet Health.
- Local Governing Body Certification (page 3 of your application) signed by an authorized local official.
  - A request for signature is in progress. The local government representative will forward the signed certification to the DEQ regional office and send a copy to the applicant.
- Manufacturer's specifications of the EtO sterilizers including their maximum capacity (EtO throughput).
  - See Attachment 1 of resubmitted permit application.
- Manufacturer's specifications of the EtO abators including their maximum capacity (EtO throughput) and EtO degradation efficiency.
  - See Attachment 2 of resubmitted permit application.
- Clarification on which EtO sterilizers are vented into which EtO abators and correction of vent/stack numbers (page 21 of your application) if needed.
  - Clarification on which EtO sterilizers are vented into which EtO abators has been included on page 13, table column 2. Vent/stack numbers have been verified and no correction is needed. Additional detail was included on page 21, table column 2
- Confirmation that your application includes all emission units at the facility which require to be permitted.
  - An additional unit was included on page 10.

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If you have any additional questions, please call me at (757) 609-4217 or contact me by email Michael_Porter@lifenethealth.org.

Regards,

Michael Porter
Director of Corporate Support

PERMIT FORMS
PURSUANT TO
REGULATIONS FOR THE CONTROL AND ABATEMENT OF AIR POLLUTION

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY

AIR PERMITS
FORM 7 APPLICATION

NEW SOURCE REVIEW PERMITS
and STATE OPERATING PERMITS

What pages do I fill out for my facility?

- All new sources and major modifications: 3
- All new and modified sources (except for true minors): 4
- All new and modified sources and State Operating Permits: 7, 8, 9
- All new and modified major sources: 25, 26, 27, 28, 29

In addition, complete the following pages:

- For boilers, external combustion units, turbines: 10, (19, 20 if applicable), 21, 22, 23, 24, 30
- For stationary combustion engines: 11, (19, 20 if applicable), 21, 22, 30
- For incinerators: 12, 19, 20, 21, 22, 23, 24, 30
- For surface coating operations: 13, 14, (19, 20 if applicable), 21, 22, 23, 24, 30
- For quarry operations: 13, 19, 20, 21, 22
- For VOC/Petroleum storage tanks: 15, 16, 21, 22, 23, 24, 30
- For loading racks and oil water separators: 17, 21, 22, 23, 24, 30
- For fumigation operations: 18
- For all other sources: 13, (19, 20, 23, 24 if applicable), 21, 22, 30

NOTE: ***The facility only has to fill out the applicable pages that apply.* If any pages are unused, the facility does not need to submit the unused pages with the application.

Source-Specific Form 7 Applications

There are some source-specific Form 7 Applications available for these sources:
(check out the DEQ website at http://www.deq.virginia.gov/Programs/Air/Forms.aspx)

- Asphalt plants (Form 7A)
- Crematories (Form 7B)
- Concrete Batch Plant (Form 7C)

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY - AIR PERMITS

LOCAL GOVERNING BODY CERTIFICATION FORM

Facility Name: LifeNet Health	Registration Number: 91035
Applicant's Name: Michael Porter	Name of Contact Person at the site: Michael Porter
Applicant's Mailing address: 1864 Concert Drive Virginia Beach, Virginia 23453	Contact Person Telephone Number: 757-609-4217

Facility location (also attach map):

LifeNet Health, 5733 Bayside Road, Suites 103, 104, 105, 106, 107, 108, Virginia Beach, Virginia 23455

Facility type, and list of activities to be conducted:
Medical, Administrative, A non-profit, full service Organ Procurement Organization and tissue banking system.

The applicant is in the process of completing an application for an air pollution control permit from the Virginia Department of Environmental Quality. In accordance with § 10.1-1321.1. Title 10.1, Code of Virginia (1950), as amended, before such a permit application can be considered complete, the applicant must obtain a certification from the governing body of the county, city or town in which the facility is to be located that the location and operation of the facility are consistent with all applicable ordinances adopted pursuant to Chapter 22 (§§ 15.2-2200 et seq.) of Title 15.2. The undersigned requests that an authorized representative of the local governing body sign the certification below.

Applicant's signature:	Date: 1/26/16

The undersigned local government representative certifies to the consistency of the proposed location and operation of the facility described above with all applicable local ordinances adopted pursuant to Chapter 22 (§§15.2-2200 et seq.) of Title 15.2. of the Code of Virginia (1950) as amended, as follows:

(**Check one block**)

- [X] The proposed facility is **fully consistent** with all applicable local ordinances.
- [ ] The proposed facility is **inconsistent** with applicable local ordinances; see attached information.

Signature of authorized local government representative:	Date: 1/28/16
Type or print name: Charles W Sutton	Title: Inspections Coordinator

County, city or town:

[THE LOCAL GOVERNMENT REPRESENTATIVE SHOULD FORWARD THE SIGNED CERTIFICATION TO THE APPROPRIATE DEQ REGIONAL OFFICE AND SEND A COPY TO THE APPLICANT.]

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY – 2015 AIR PERMIT APPLICATION FEE

As of July 1, 2012, air permit applications are subject to a fee. The fee does not apply to administrative amendments or true minor sources. Applications will be considered incomplete if the proper fee is not paid and will not be processed until full payment is received. Air permit application fees are not refundable.
Fees are adjusted every January 1st for CPI. THIS FORM IS VALID JANUARY 1, 2015 TO DECEMBER 31, 2015.
Send this form and a check (or money order) payable to "Treasurer of Virginia" to:
Department of Environmental Quality
Receipts Control
P.O. Box 1104
Richmond, VA 23218

Send a copy of this form with the permit application to:
The DEQ Regional Office

Please retain a copy for your records. Any questions should be directed to the DEQ regional office to which the application will be submitted. **Unsure of your fee? Contact the Regional Air Permit Manager.**

COMPANY NAME:	LifeNet Health	**FIN:**	52-1273592
COMPANY REPRESENTATIVE:	Michael Porter	**REG. NO.**	91035
MAILING ADDRESS:	1864 Concert Drive, Virginia Beach, Virginia 23453		
BUSINESS PHONE:	757-609-4217	**FAX:**	757-609-4405
FACILITY NAME:	LifeNet Health		
PHYSICAL LOCATION:	LifeNet Health, 5733 Bayside Road, Suites 103, 104, 105, 106, 107, and 108, Virginia Beach, Virginia 23455		

PERMIT ACTIVITY	APPLICATION FEE AMOUNT	CHECK ONE
Sources subject to Title V permitting requirements:		
• Major NSR permit (Articles 7, 8, 9)	$31,497	
• Major NSR permit amendment (Articles 7, 8, 9)*	$7,349	
• State major permit (Article 6)	$15,748	
• Title V permit (Articles 1, 3)	$20,998	
• Title V permit renewal (Articles 1, 3)	$10,499	
• Title V permit modification (Articles 1, 3)	$3,674	
• Minor NSR permit (Article 6)	$1,574	
• Minor NSR amendment (Article 6)*	$787	
• State operating permit (Article 5)	$7,349	
• State operating permit amendment (Article 5)*	$3,674	
Sources subject to Synthetic Minor permitting requirements:		
• Minor NSR permit (Article 6)	$524	X
• Minor NSR amendment (Article 6)*	$262	
• State operating permit (Article 5)	$1,574	
• State operating permit amendment (Article 5)*	$839	
*FEES DO NOT APPLY TO ADMINISTRATIVE AMENDMENTS		

DEQ OFFICE TO WHICH PERMIT APPLICATION WILL BE SUBMITTED (check one)

☐ SWRO/Abingdon	☐ NRO/Woodbridge	☐ PRO/Richmond
☐ VRO/Harrisonburg	☐ BRRO/Lynchburg or Roanoke	X TRO/Virginia Beach

FOR DEQ USE ONLY
Date: _____
DC #: _____
Reg. No.: _____

APPLICATION FEE FORM DEFINITIONS:

Administrative amendment – An administrative change to a permit issued pursuant to Article 1 (9 VAC 5-80-50 et seq.), Article 3 (9 VAC 5-80-360 et seq.), Article 5 (9 VAC 5-80-800 et seq.), Article 6 (9 VAC 5-80-1100 et seq.), Article 7 (9 VAC 5-80-1400 et seq.), Article 8 (9 VAC 5-80-1605 et seq.), or Article 9 (9 VAC 5-80-2000 et seq.) of 9 VAC 5 Chapter 80. Administrative amendments include, but are not limited to, the following:

- Corrections of typographical or any other error, defect or irregularity which does not substantially affect the permit,
- Identification of a change in the name, address, or phone number of any person identified in the permit, or of a similar minor administrative change at the source,
- Change in ownership or operational control of a source where the board determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittee has been submitted to the board.

Major new source review permit (Major NSR permit) – A permit issued pursuant to Article 7 (9 VAC 5-80-1400 et seq.), Article 8 (9 VAC 5-80-1605 et seq.), or Article 9 (9 VAC 5-80-2000 et seq.) of 9 VAC 5 Chapter 80. For purposes of fees, the Major NSR permit also includes applications for projects that are major modifications.

- An Article 7 permit is a preconstruction review permit (case-by-case Maximum Achievable Control Technology (MACT) determination) for the construction or reconstruction of any stationary source or emission unit that has the potential to emit, considering controls, 10 tons per year or more of any individual hazardous air pollutant (HAP) or 25 tons per year or more of any combination of HAPs and EPA has not promulgated a MACT standard or delisted the source category.
- An Article 8 permit is for a source (1) with the potential to emit over 250 tons per year of a single criteria pollutant OR (2) is in one of the listed source categories under 9 VAC 5-80-1615 and has the potential to emit over 100 tons per year of any criteria pollutant OR (3) with the potential to emit over 100,000 tons per year of CO_2 equivalent (CO_2e) (9 VAC 5-85 Part III). PSD permits are issued in areas that are in attainment of the National Ambient Air Quality Standards.
- An Article 9 permit is a preconstruction review permit for areas that are in nonattainment with a National Ambient Air Quality Standard (NAAQS). Nonattainment permits are required by any major new source that is being constructed in a nonattainment area and is major for the pollutant for which the area is in nonattainment. Nonattainment permitting requirements may also be triggered if an existing minor source makes a modification that results in the facility being major for the pollutant for which the area is in nonattainment. A major source is any source with potential to emit over 250 tons per year of a single criteria pollutant or is in one of the listed source categories under 9 VAC 5-80-2010 and the potential to emit over 100 tons per year of any criteria pollutant. However, if any area is in nonattainment for a specific pollutant, the major source threshold may be lower for that pollutant. For example, sources locating in the Northern Virginia Ozone Nonattainment Area which are part of the Ozone Transport Region would be a major source if they have the potential to emit more than 100 tons per year of NO_X and/or 50 tons per year of VOC regardless of source category. Nonattainment permits do not require an air quality analysis but require a source to control to the Lowest Achievable Emission Rate (LAER) and to obtain offsets.

Major NSR permit amendment – A change to a permit issued pursuant to Article 7 (9 VAC 5-80-1400 et seq.), Article 8 (9 VAC 5-80-1605 et seq.), or Article 9 (9 VAC 5-80-2000 et seq.) of 9 VAC 5 Chapter 80. Only minor amendments and significant amendments are included in this category.

Minor new source review permit (Minor NSR permit) – A permit to construct and operate issued under

Article 6 (9 VAC 5-80-1100 et seq.) of 9 VAC 5 Chapter 80. Minor NSR permits are 1) categorically required; or 2) issued to sources whose uncontrolled emission rate for a regulated criteria pollutant is above exemption thresholds and permitting allowables are below Title V thresholds, and/or 3) issued to sources whose potential to emit for a toxic pollutant is above state toxic exemption thresholds and permitting allowables are below Title V thresholds. The minor NSR permit can be used to establish synthetic minor limits for avoidance of state major, PSD and/or Title V permits. For purposes of fees, the Minor NSR permit also includes exemption applications and applications for projects at existing sources.

Minor NSR amendment - A change to a permit issued pursuant to Article 6 (9 VAC 5-80-1100 et seq.) of 9 VAC 5 Chapter 80. Only minor amendments and significant amendments are included in this category.

Sources subject to Synthetic Minor permitting requirements - Stationary sources whose potential to emit exceeds the Title V threshold (100 tons per year of a criteria pollutant, 10/25 tpy of HAPs, and/or 100,000 tpy CO_2e) but have taken federally enforceable limits, either through a state operating permit or a minor NSR permit, to avoid Title V permit applicability.

Sources subject to Title V permitting requirements – Stationary sources that have a potential to emit above the Title V thresholds or are otherwise applicable to the Title V permitting program.

State major permit – A permit to construct and operate issued under Article 6 (9 VAC 5-80-1100 et seq.) of 9 VAC 5 Chapter 80. State major permits are for facilities that have an allowable emission rate of more than 100 tons per year, but less than 250 tons per year, of any criteria pollutant and are not listed in the 28 categories under "major stationary source" as defined in 9 VAC 5-80-1615.

State operating permit (SOP) – A permit issued under Article 5 (9 VAC 5-80-800 et seq.) of 9 VAC 5 Chapter 80. SOPs are most often used by stationary sources to establish federally enforceable limits on potential to emit to avoid major New Source Review permitting (PSD and Nonattainment permits), Title V permitting, and/or major source MACT applicability. SOPs can also be used to combine multiple permits from a stationary source into one permit or to implement emissions trading requirements. The State Air Pollution Control Board, at its discretion, may also issue SOPs to cap the emissions of a stationary source or emissions unit causing or contributing to a violation of any air quality standard or to establish a source-specific emission standard or other requirement necessary to implement the federal Clean Air Act or the Virginia Air Pollution Control Law.

SOP permit amendment - A change to a permit issued pursuant to Article 5 (9 VAC 5-80-800 et seq.) of 9 VAC 5 Chapter 80. Only minor amendments and significant amendments are included in this category.

Title V permit – A federal operating permit issued pursuant to Article 1 (9 VAC 5-80-50 et seq.) or Article 3 (9 VAC 5-80-360 et seq.) of 9 VAC 5 Chapter 80. Facilities which (1) have the potential to emit of air pollutants above the major source thresholds, listed in 9 VAC 5-80-60 OR (2) are area sources of hazardous air pollutants, not explicitly exempted by EPA OR (3) have the potential to emit over 100,000 tons per year of CO_2 equivalent (CO_2e) (9 VAC 5-85 Part III), are required to obtain a Title V permit. For purposes of fees, the Title V permit also includes Acid Rain (Article 3) permit applications.

Title V permit modification - A change to a permit issued pursuant to Article 1 (9 VAC 5-80-50 et seq.) or Article 3 (9 VAC 5-80-360 et seq.) of 9 VAC 5 Chapter 80. Only minor modifications and significant modifications are included in this category.

Title V permit renewal – A renewal of a Title V permit pursuant to Article 1 (9 VAC 5-80-50 et seq.) of 9 VAC 5 Chapter 80. Title V permits are renewed every 5 years and a renewal application must be submitted to the regional office no sooner than 18 months and no later than 6 months prior to expiration of the Title V permit. For purposes of fees, the Title V permit renewal also includes Acid Rain (Article 3) permit renewal applications.

True minor source – A source that does not have the physical or operational capacity to emit major amounts (even if the source owner and regulatory agency disregard any enforceable limits). For further information, click here.

AIR PERMIT APPLICATION
CHECK ALL PAGES ATTACHED AND LIST ALL ATTACHED DOCUMENTS

- X Local Government Certification Form, Page 3
- X Application Fee Form, Pages 4-6
- X Document Certification Form, Page 7
- X General Information, Pages 8-9
- X Fuel Burning Equipment, Page 10
- ___ Stationary Internal Combustion Engines, Page 11
- ___ Incinerators, Page 12
- X Processing, Page 13
- ___ Inks, Coatings, Stains, and Adhesives, Page 14
- ___ VOC/Petroleum Storage Tanks, Pages 15-16
- ___ Loading Rack and Oil-Water Separators, Page 17
- ___ Fumigation Operations, Page 18
- X Air Pollution Control and Monitoring Equipment, Page 19
- X Air Pollution Control/Supplemental Information, Page 20
- X Stack Parameters and Fuel Data, Page 21
- X Proposed Permit Limits for Criteria Pollutants, Page 22
- X Proposed Permit Limits for Toxic Pollutants/HAPs, Page 23
- ___ Proposed Permit Limits for Other Reg. Pollutants, Page 24
- ___ Proposed Permit Limits for GHGs on Mass Basis, Page 25
- ___ Proposed Permit Limits for GHGs on CO_2e Basis, Page 26
- ___ BAE for Criteria Pollutants, Page 27
- ___ BAE for GHGs on Mass Basis, Page 28
- ___ BAE for GHGs on CO_2e Basis, Page 29
- X Operating Periods, Page 30

- X ATTACHED DOCUMENTS:
- X Map of Site Location
- X Facility Site Plan
- ___ Process Flow Diagram/Schematic
- X MSDS or CPDS Sheets
- X Estimated Emission Calculations
- ___ Stack Tests
- ___ Air Modeling Data
- ___ Confidential Information (see Instructions)
- ___ BACT Analysis

Check added form sheets above; also indicate the number of copies of each form in blank provided.

DOCUMENT CERTIFICATION FORM

I certify under penalty of law that this document and all attachments [as noted above] were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering and evaluating the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I certify that I understand that the existence of a permit under [Article 6 of the Regulations] does not shield the source from potential enforcement of any regulation of the board governing the major NSR program and does not relieve the source of the responsibility to comply with any applicable provision of the major NSR regulations.

SIGNATURE: _____ DATE: 1/26/16

NAME: Mike Porter REGISTRATION NO: _____

TITLE: Dir C.S. COMPANY: Lifeplex Health

PHONE: 757-619-4214 ADDRESS: _____

EMAIL: _____

References: Virginia Regulations for the Control and Abatement of Air Pollution (Regulations), 9 VAC 5-20-230B and 9 VAC 5-80-1140E.

GENERAL INFORMATION

Person Completing Form: Jeremy Hirschbeck	Date: 1/25/2016	Registration Number: 91035
Company and Division Name: LifeNet Health		FIN: 52-1273592
Mailing Address: 1864 Concert Drive, Virginia Beach, Virginia 23453		
Exact Source Location – Include Name of City (County) and Full Street Address or Directions: LifeNet Health, 5733 Bayside Road, Suites 103, 104, 105, 106, 107, and 108, Virginia Beach, Virginia 23455		
Telephone Number: 757-464-4761	No. of Employees: 737	Property Area at Site: 700 SF

Person to Contact on Air Pollution Matters – Name and Title:	Phone Number: 757-609-4217
Michael Porter	Fax: 757-609-4405
Director of Corporate Support	Email: michael_porter@lifenethealth.org

Latitude and Longitude Coordinates **OR** UTM Coordinates of Facility:
36.898147, -76.184700

Reason(s) for Submission (Check all that apply):

☐ State Operating Permit

This permit is applied for pursuant to provisions of the Virginia Administrative Code, 9 VAC 5 Chapter 80, Article 5 (SOP)

☒ New Source

☐ Modification of a Source

☐ Relocation of a Source

This permit is applied for pursuant to the following provisions of the Virginia Administrative Code:

- ☒ 9 VAC 5 Chapter 80, Article 6 (Minor Sources)
- ☐ 9 VAC 5 Chapter 80, Article 8 (PSD Major Sources)
- ☐ 9 VAC 5 Chapter 80, Article 9 (Non-Attainment Major Sources)

☐ Amendment to a Permit Dated: _____ Permit Type: ☐ SOP (Art. 5) ☐ NSR (Art. 6, 8, 9)

Amendment Type:

- ☐ Administrative Amendment
- ☐ Minor Amendment
- ☐ Significant Amendment

This amendment is requested pursuant to the provisions of:

- ☐ 9 VAC 5-80-970 (Art. 5 Adm.)
- ☐ 9 VAC 5-80-980 (Art. 5 Minor)
- ☐ 9 VAC 5-80-990 (Art. 5 Sig.)
- ☐ 9 VAC 5-80-1270 (Art. 6 Adm.)
- ☐ 9 VAC 5-80-1280 (Art. 6 Minor)
- ☐ 9 VAC 5-80-1290 (Art. 6 Sig.)
- ☐ 9 VAC 5-80-1935 (Art. 8 Adm.)
- ☐ 9 VAC 5-80-1945 (Art. 8 Minor)
- ☐ 9 VAC 5-80-1955 (Art. 8 Sig.)
- ☐ 9 VAC 5-80-2210 (Art. 9 Adm.)
- ☐ 9 VAC 5-80-2220 (Art. 9 Minor)
- ☐ 9 VAC 5-80-2230 (Art. 9 Sig.)

☐ Other (specify): _____

Explanation of Permit Request (attach documents if needed):

Three (3) EO sterilizers and two (2) EO abators are being moved from the LifeNet Health Concert Drive location to the Bayside Road location to support a new equipment/instrument sterilization operation.

GENERAL INFORMATION (CONTINUED)

For Portable Plants:

Is this facility designed to be portable? ☐ Yes ☒ No

- If yes, is this facility already permitted as a portable plant? ☐ Yes ☐ No Permit Date: _____

If not permitted, is this an application to be permitted as a portable plant? ☐ Yes ☐ No

If permitted as a portable facility, is this a notification of relocation? ☐ Yes ☐ No

- Describe the new location or address (include a site map): _____

- Will the portable facility be co-located with another source? ☐ Yes ☐ No Reg. No. _____
- Will the portable facility be modified or reconstructed as a result of the relocation? ☐ Yes ☐ No
- Will there be any new emissions other than those associated with the relocation? ☐ Yes ☐ No
- Is the facility suitable for the area to which it will be located? (attach documentation) ☐ Yes ☐ No

Describe the products manufactured and/or services performed at this facility:

Human Tissue processing and Equipment Sterilization.

List the Standard Industrial Classification (SIC) Code(s) for the facility:

8	0	6	2																

List the North American Industry Classification System (NAICS) Code(s) for the facility:

6	2	2	1	1	0																		

List all the facilities in Virginia under common ownership or control by the owner of this facility:

Please see attachment LifeNet Health directory.

Milestones: This section is to be completed if the permit application includes a new emissions unit or modification to existing operations.

Milestones*:	Starting Date:	Estimated Completion Date:
Relocate three 3M 8XL sterilizer/aerators and 2 abators from Concert Drive location to Bayside Road location.	1/1/2016	2/12/2016
Install three 3M 8XL sterilizer/aerators and 2 abators at Bayside Road location.	2/15/2016	2/19/2016
Start-up operations (manufacturer IQ/OQ, calibration, owner PQ)	2/22/2016	2/26/2016
Go live date	2/29/2016	2/29/2016

*For new or modified installations to be constructed in phased schedule, give construction/installation starting and completion date for each phase.

FUEL BURNING EQUIPMENT: (Boilers, Turbines, Kilns, and Other External Combustion Units)

Company Name:	LifeNet Health	Date:	1/25/2016	Registration Number:	91035

Unit Ref. No.	Equipment Manufacturer, Type, and Model Number	Date of Manuf.	Date of Const.	Max. Rated Input Heat Capacity For Each Fuel (Million Btu/hr)	Type of Fuel	Type of Equip. (use Code A)	Usage (use Code B)	Requested Throughput* (hrs/yr OR fuel/yr)	Federal Regulations that Apply
BG-4	Emergency Generator, Caterpillar, Model 3456	2003	2003	11.2 mmBtu/hr	Diesel Fuel	19 Diesel Fuel Generator	6	500 hrs/yr	N/A

☐ Estimated Emission Calculations Attached (include references of emission factors) and/or Stack Test Results if Available

Code A – Equipment

BOILER TYPE:
1. Pulverized Coal - Wet Bottom
2. Pulverized Coal - Dry Bottom
3. Pulverized Coal - Cyclone Furnace
4. Circulating Fluidized Bed
5. Spreader Stoke
6. Chain or Travelling Grate Stoker
7. Underfeed Stoker
8. Hand Fired Coal
9. Oil, Tangentially Fired
10. Oil, Horizontally Fired (except rotary cup)
11. Gas, Tangentially Fired
12. Gas, Horizontally Fired
13. Wood with Flyash Reinjection
14. Wood without Flyash Reinjection
15. Other (specify) _____

OTHER COMBUSTION UNITS:
16. Oven / Kiln
17. Rotary Kiln
18. Process Furnace
19. Other (specify) _____

Code B - Usage

1. Steam Production
2. Drying / Curing
3. Space Heating
4. Process Heat
5. Food Processing
6. Electrical Generation
7. Mechanical Work
8. Other (specify) _____

***Pick only one option for a requested throughput.**

NOTE: Dryers, kilns, and furnaces also have to fill out Page 13.

PROCESSING, MANUFACTURING, SURFACE COATING AND DEGREASING OPERATIONS:

Company Name:	LifeNet Health	Date:	1/25/2016	Registration Number:	91035

Unit Ref. No.	Process or Operation Name	Equipment Manufacturer, Type, and Model Number	Date of Manuf.	Date of Const.	Max. Rated Capacity (lbs/hr)*	Requested Throughput*			Federal Regulations that Apply
						(lbs / hr)	(lbs / day)	(lbs / yr)	
ETOS-7	ETO Sterilizer	3M Steri-Vac 8XL Gas Sterilizer/Aerator	2010	2010	0.031	0.031	0.744	273	Title 40 → Chapter I → Subchapter C → Part 63 → Subpart O → §63.362
ETOS-9	ETO Sterilizer	3M Steri-Vac 8XL Gas Sterilizer/Aerator	2010	2010	0.031	0.031	0.744	273	Title 40 → Chapter I → Subchapter C → Part 63 → Subpart O → §63.362
ETOS-10	ETO Sterilizer	3M Steri-Vac 8XL Gas Sterilizer/Aerator	2010	2010	0.031	0.031	0.744	273	Title 40 → Chapter I → Subchapter C → Part 63 → Subpart O → §63.362
AB-D	EO Abator For ETOS-7	3M EO Abator	2010	2010	See page 21	N/A	N/A	N/A	Title 40 → Chapter I → Subchapter C → Part 63 → Subpart O → §63.362
AB-E	EO Abator For ETOS-9, 10	3M EO Abator	2010	2010	See page 21	N/A	N/A	N/A	Title 40 → Chapter I → Subchapter C → Part 63 → Subpart O → §63.362

[X] Estimated Emission Calculations Attached (include references of emission factors) and/or Stack Test Results if Available

*** Specify units for each operation in tons, pounds, gallons, etc., as applicable. For coating operations, the maximum rated capacity is the spray gun capacity.**

AIR POLLUTION CONTROL AND MONITORING EQUIPMENT:

Company Name:	LifeNet Health	Date:	1/25/2016	Registration Number:	91035

Unit Ref. No.	Vent/ Stack No.	Device Ref. No.	Pollutant/Parameter	Air Pollution Control Equipment			Monitoring Instrumentation
				Manufacturer and Model No.	Type (use Code N)	Percent Efficiency (%)	Specify Type, Measured Pollutant, and Recorder Used
AB-D	VSE-4	AB-D	EtO, CO2, H2O	3M, Model 50AN	11	99.0	Temperature and Pressure
AB-E	VSE-5	AB-E	EtO, CO2, H2O	3M, Model 50AN	11	99.0	Temperature and Pressure

[X] Manufacturer Specifications Included

Code N – Type of Air Pollution Control Equipment

1. Settling Chamber
2. Cyclone
3. Multicyclone
4. Cyclone scrubber
5. Orifice scrubber
6. Mechanical scrubber
7. Venturi scrubber
   a. Fixed throat
   b. Variable throat
8. Mist eliminator
9. Filter
   a. Baghouse
   b. Other:_____
10. Electrostatic Precipitator
    a. Hot side
    b. Cold side
    c. High voltage
    d. Low voltage
    e. Single stage
    f. Two stage
    g. Other:_____
11. Catalytic Afterburner
12. Direct Flame Afterburner
13. Diesel Oxidation Catalyst (DOC)
14. Thermal Oxidizer
15. Regenerative Thermal Oxidizer (RTO)
16. Selective Catalytic Reduction (SCR)
17. Selective Non-Catalytic Reduction (SNCR)
    17. Absorber
        a. Packed tower
        b. Spray tower
        c. Tray tower
        d. Venturi
        e. Other:_____
    18. Adsorber
        a. Activated carbon
        b. Molecular sieve
        c. Activated alumina
        d. Silica gel
        e. Other:_____
    19. Condenser (specify)
    20. Other:_____

AIR POLLUTION CONTROL EQUIPMENT - SUPPLEMENTAL INFORMATION:

Company Name:	LifeNet Health	Date:	1/25/2016	Registration Number:	91035

Device Ref. No.	Type (use Code N)	Liquid Flow Rate (gpm) (4, 5, 6, 7, 17 ,19)	Liquid Medium (4, 5, 6, 7, 17, 19)	Cleaning Method (9, 10, 17, 18)	Number of Fields (10)	Number of Sections (9, 10)	Air to Cloth Ratio (fpm) (9)	Filter Material (9)	Inlet Temp. (°F)	Regeneration Method & Cycle Time (sec) (18)	Chamber Temp. (°F) (11, 12, 14, 15)	Retention Time (sec) (11, 12, 14, 15)	Pressure Drop (inch H_2O) (3, 4, 5, 6, 7, 9, 17)
AB-D	11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	See below**	See below***	N/A
AB-E	11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	See below**	See below***	N/A

NOTE: Numbers listed in parenthesis in the columns above represent the Control Equipment in Code N below.

Code N – Type of Air Pollution Control Equipment

1. Settling Chamber
2. Cyclone
3. Multicyclone
4. Cyclone scrubber
5. Orifice scrubber
6. Mechanical scrubber
7. Venturi scrubber
   a. Fixed throat
   b. Variable throat
8. Mist eliminator
9. Filter
   a. Baghouse
   b. Other:_____
10. Electrostatic Precipitator
    a. Hot side
    b. Cold side
    c. High voltage
    d. Low voltage
    e. Single stage
    f. Two stage
    g. Other:_____
11. Catalytic Afterburner
12. Direct Flame Afterburner
13. Diesel Oxidation Catalyst (DOC)
14. Thermal Oxidizer
15. Regenerative Thermal Oxidizer (RTO)
16. Selective Catalytic Reduction (SCR)
17. Selective Non-Catalytic Reduction (SNCR)
    17. Absorber
        a. Packed tower
        b. Spray tower
        c. Tray tower
        d. Venturi
        e. Other:_____
    18. Adsorber
        a. Activated carbon
        b. Molecular sieve
        c. Activated alumina
        d. Silica gel
        e. Other:_____
    19. Condenser (specify)
    20. Other:_____

** Stand by: 300 – 315F; Operating: 390 – 430F; Maximum: 499F

***Gas Retention Time (time of EtO conversion in Standard Abator Operations) = 45 minutes

STACK PARAMETERS AND FUEL DATA:

Company Name:	LifeNet Health	Date:	1/25/2016	Registration Number:	91035

Unit Ref. No.	Vent/ Stack No.	Vent/Stack or Exhaust Data						Fuel(s) Data				
		Vent/Stack Config. (use Code O)	Vent/Stack Height (feet)	Exit Diameter (feet)	Exit Gas Velocity (ft/sec)	Exit Gas Flow Rate (acfm)	Exit Gas Temp. (°F)	Type of Fuel	Heating Value* (Btu/____)	Max. Rated Burned/hr (specify units)	Max. Sulfur %	Max. Ash %
AB-D	VSI-41 Abator Line	5	35	0.5	1019	200	32-460	N/A (electric heater)	N/A	N/A	N/A	N/A
	VSI-42 Emergency Line	5	35	0.5	1019	200	32-460	N/A (electric heater)	N/A	N/A	N/A	N/A
AB-E	VSI-51 Abator Line	5	35	0.5	1019	200	32-460	N/A (electric heater)	N/A	N/A	N/A	N/A
	VSI-22 Emergency Line	5	35	0.5	1019	200	32-460	N/A (electric heater)	N/A	N/A	N/A	N/A

Code O – Vent/Stack Configuration

1. Stack discharging downward, or nearly download
2. Equivalent stack representing a combination of multiple actual stacks
3. Gooseneck stack
4. Stack discharging in a horizontal direction
5. Stack with an unobstructed opening discharge in a vertical direction
6. Vertical stack with a weather cap or similar obstruction in exhaust system

*** Specify units for each heating value in Btus per unit of fuel.**

PROPOSED PERMIT LIMITS FOR CRITERIA POLLUTANTS:

Company Name:	LifeNet Health	Date:	1/25/2016	Registration Number:	91035

Unit Ref. No.	Proposed Permit Limits for Criteria Pollutants															
	PM [a] (Particulate Matter)		PM-10 [a,b] (10 µM or smaller particulate matter)		PM 2.5 [a,b] (2.5 µM or smaller particulate matter)		SO_2 (Sulfur Dioxide)		NO_X (Nitrogen Oxides)		CO (Carbon Monoxide)		VOC [a] (Volatile Organic Compounds)		Pb (Lead)	
	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
AB-D													0.0006	0.002		
AB-E													0.0006	0.002		
TOTAL:													0.0012	0.004		

☐ Estimated Emission Calculations Attached (totals and per Unit Ref. No.)

[a] PM, PM-10, PM 2.5, and VOC should also be split up by component and reported under the Proposed Permit Limits for Toxic Pollutants/HAPs.

[b] PM-10 and PM 2.5 includes filterable and condensable.

PROPOSED PERMIT LIMITS FOR TOXIC POLLUTANTS/HAPS:

Company Name:	LifeNet Health	Date:	1/25/2016	Registration Number:	91035

Unit Ref. No.	Proposed Permit Limits for Toxic/HAP Pollutants*															
	HAP Name: CAS #: 75-21-8		HAP Name: CAS #:		HAP Name: CAS #:		HAP Name: CAS #:		HAP Name: CAS #:		HAP Name: CAS #:		HAP Name: CAS #:		HAP Name: CAS #:	
	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr	lbs/hr	tons/yr
ETOS-7	0.003	3 lbs/yr or 0.001 tons/yr														
ETOS-9	0.003	3 lbs/yr or 0.001 tons/yr														
ETOS-10	0.003	3 lbs/yr or 0.001 tons/yr														
TOTAL:	0.009	0.003														

[X] Estimated Emission Calculations Attached (totals and per Unit Ref. No.)

* **Specify the name of the toxic pollutant/HAP for each Unit Ref. No. along with the respective CAS Number**. Toxic Pollutant means a pollutant on the designated list in the Form 7 Instructions document. Particulate matter and volatile organic compounds are not toxic pollutants as generic classes of substances, but individual substances within these classes may be toxic pollutants because their toxic properties or because a TLV (tm) has been established.

OPERATING PERIODS:

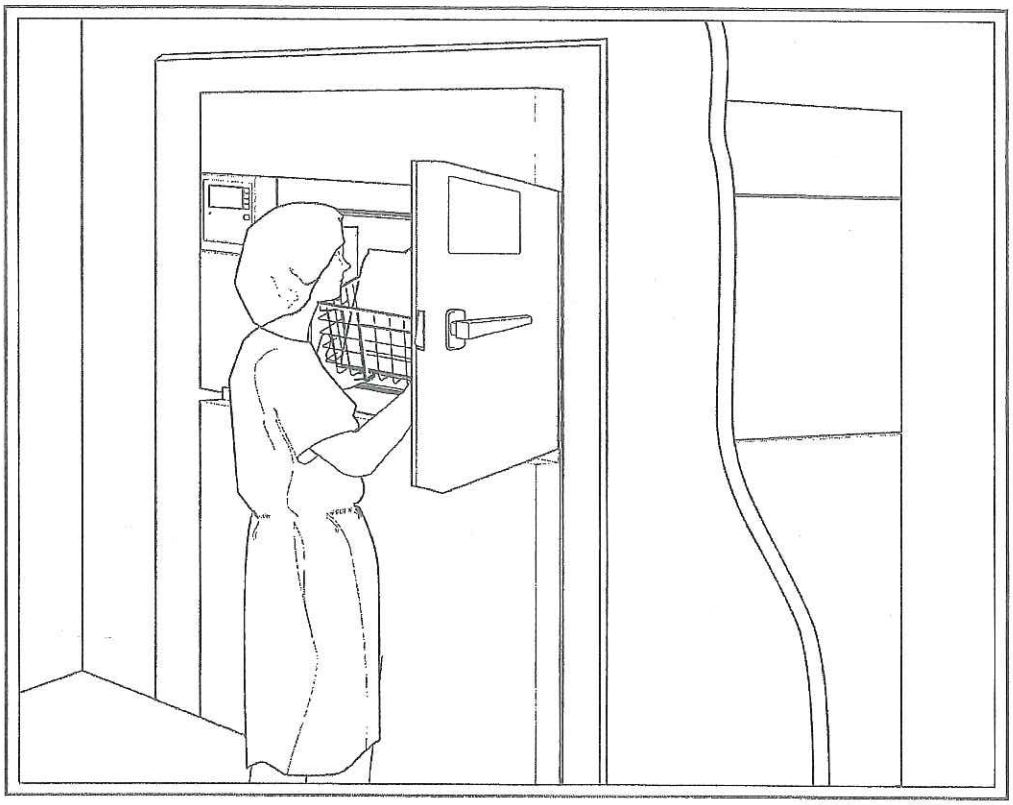
Company Name: LifeNet Health	Date: 1/25/2016	Registration Number: 91035

Unit Ref. No.	Percent Annual Use/Throughput by Season				Normal Process/Equipment Operating Schedule			Maximum Process/Equipment Operating Schedule		
	December / February	March / May	June / August	September / November	Hours per Day	Days per Week	Weeks per Year	Hours per Day	Days per Week	Weeks per Year
ETO S-7	100	100	100	100	24	7	52	24	7	52
ETO S-9	100	100	100	100	24	7	52	24	7	52
ETO S-10	100	100	100	100	24	7	52	24	7	52

Maximum Facility Operating Schedule		
Hours per Day	Days per Week	Weeks per Year
24	7	52

3M™ Steri-Vac™ 8XL Gas Sterilizer/Aerator

Operator's Manual



3M Health Care

FEATURES & BENEFITS—ETHYLENE OXIDE STERILIZATION

Manual Cycle Interrupt

The operator can manually interrupt a cycle at any time. If the cartridge of gas was punctured, the final vacuum and air purge automatically clears the chamber before the door is unlocked.

Automatic Aeration

Aeration begins automatically after the sterilization cycle. The sterilization/aeration process can be accomplished in one chamber, reducing potential gas exposure that can occur during load transfer to an aerator.

General Information

Sterilization Cycles

Temperature	Gas Exposure Time	Cycle Time *approx.*
37°C (99°F)	3 hours	5 hours 30 min
55°C (131°F)	1 hour	3 hours 45 min

NOTICE

Additional time is required after the sterilization cycle time to allow for aeration of the load. It is necessary to obtain recommended aeration times and temperatures from device manufacturers.

Sterilant

3M™ Steri-Gas™ EO Cartridge 8-170
100% ethylene oxide (EO).
Weight of gas.....170 grams
Minimum gross weight..... 185 grams

Sterilant Specifications

Refer to the 3M Steri-Gas Consumer Product Profile.

Shelf Life and Gas Weight

Refer to the 3M Steri-Gas Consumer Product Profile.

Chamber Dimensions

Width..... 51 cm (20 in)
Depth..... 97 cm (38 in)
Height..... 46 cm (18 in)
Diagonal..... 117 cm (46in)

Basket Dimensions

Width..... 46 cm (18 in)
Depth..... 91 cm (36 in)
Height..... 20 cm (8 in)

Water Requirements

Distilled water is added by the operator to a reservoir with 7.5 liter (2 gal.) capacity.

3M™ Steri-Vac™

8XL Gas Sterilizer/Aerator

Theory of Operation

3M Health Care

GENERAL INFORMATION

3M has been manufacturing 3M Steri-Vac 100% ethylene oxide sterilizers for the health care industry since 1964. During that time, the 3M Steri-Vac system has become a trusted method for broad-use, low-temperature sterilization worldwide. Continuous improvements and enhancements have led to a wide range of sterilizer sizes and configurations (Table 1).

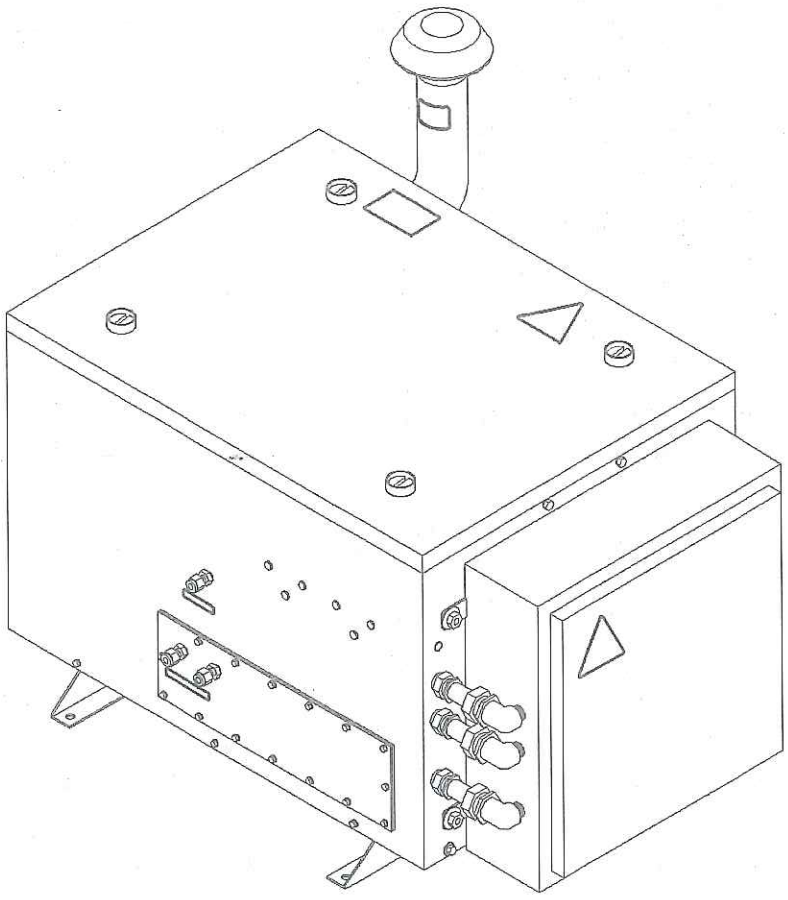
Table 1. 3M Steri-Vac Sterilizer Specifications

	3M Steri-Vac Model 4XL	3M Steri-Vac Model 5XL	3M Steri-Vac Model 8XL
Chamber Dimensions (Width x Height x Depth)	18" x 16" x 24" 46cm x 41cm x 61cm	17" x 15" x 32.5" 43cm x 38cm x 83cm	20" x 18" x 38" 51cm x 46cm x 97cm
Chamber Volume	4.0 cubic feet 115 liters	4.8 cubic feet 136 liters	7.9 cubic feet 227 liters
3M Steri-Gas Cartridge	4-100	4-100	8-170
Minimum EO Weight	100 grams (3.52 oz)	100 grams (3.52 oz)	170 grams (5.99 oz)
Minimum Gross Weight	117 grams (4.12 oz)	117 grams (4.12 oz)	185 grams (6.52 oz)
Chamber Gas Concentration (approximate)	870 mg/liter	735 mg/liter	750 mg/liter
Sterilization Cycles	37°C/55°C	37°C/55°C	37°C/55°C
Gas exposure time	250/62 minutes	180/60 minutes	180/60 minutes
Total cycle time (approx.)	5.5/2.5 hours	4.75/2.75 hours	5.5/3.75 hours

Operation and Installation Manual

3M™ EO Abator

Models 50AN, 50AE, 50AJ



3M Health Care

and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numerique de la classe A respecte toutes les exigences due Reglement sur le materiel brouilleur du Canada.

General Information

Physical Dimensions
- Width ..... 900 mm (36.0 in.)
- Height ..... 800 mm (31.5 in.)
- Depth ..... 1050 mm (41.5 in.)

Suggested Service Area:
- Top ..... 900 mm (36 in.)
- Left Side ..... 500 mm (20 in.)
- Right Side ..... 500 mm (20 in.)
- Front ..... 500 mm (20 in.)
- Back ..... 100 mm (4 in.)

Heat Source ..... 6 kW Electric Air Duct Heater
Minimum Air Flow ..... 1.4 NCMM (50 SCFM)
Weight ..... 163 kg (360 lbs.)
Maximum EO Feed Rate ..... 7.7 g/min (0.017 lbs./min)
Exhaust Temperature:
- Idle ("Ready") ..... 138°C (280°F)
- Typical Operating (Processing EO) ..... 238°C (460°F)
- Upper Limit ..... 260°C (500°F)

SECTION 1: OPERATING INSTRUCTIONS

System Description:

The 3M EO Abator is intended to remove ethylene oxide (EO) from the exhaust of 3M Steri-Vac Sterilizers and Aerators. The EO Abator converts EO into carbon dioxide and water vapor through a heated catalytic process.

The 3M EO Abator was designed for use with 3M Steri-Vac Sterilizers and Aerators. The Abator includes all controls and indicators necessary to maintain safe operating conditions within the processing limits of the machine. This system provides an internal operating condition where the EO concentration is well below the lower flammability limit of 30,000ppm EO in air.

The process by which the Abator system works is one in which ambient air is pulled by the blower into the Abator system through the air inlet and pre-filter. The air then passes through the electric heater where it is heated to approximately 138°C (280°F). The heated air then passes through the catalytic cell inlet where EO is fed into the air stream through a solenoid valve and injection manifold. As the EO enters the heated air stream, it is diluted with air before it enters the catalytic cell where the EO is catalyzed. The heat given off by this catalytic process raises the temperature of the catalytic cell and the effluent air stream in proportion to the amount of EO introduced into the Abator system. When properly installed with 3M Steri-Vac Sterilizers and/or Aerators, the temperature should not exceed 260°C (500°F). If this value is exceeded, damage to the catalytic cell and other internal components will result.

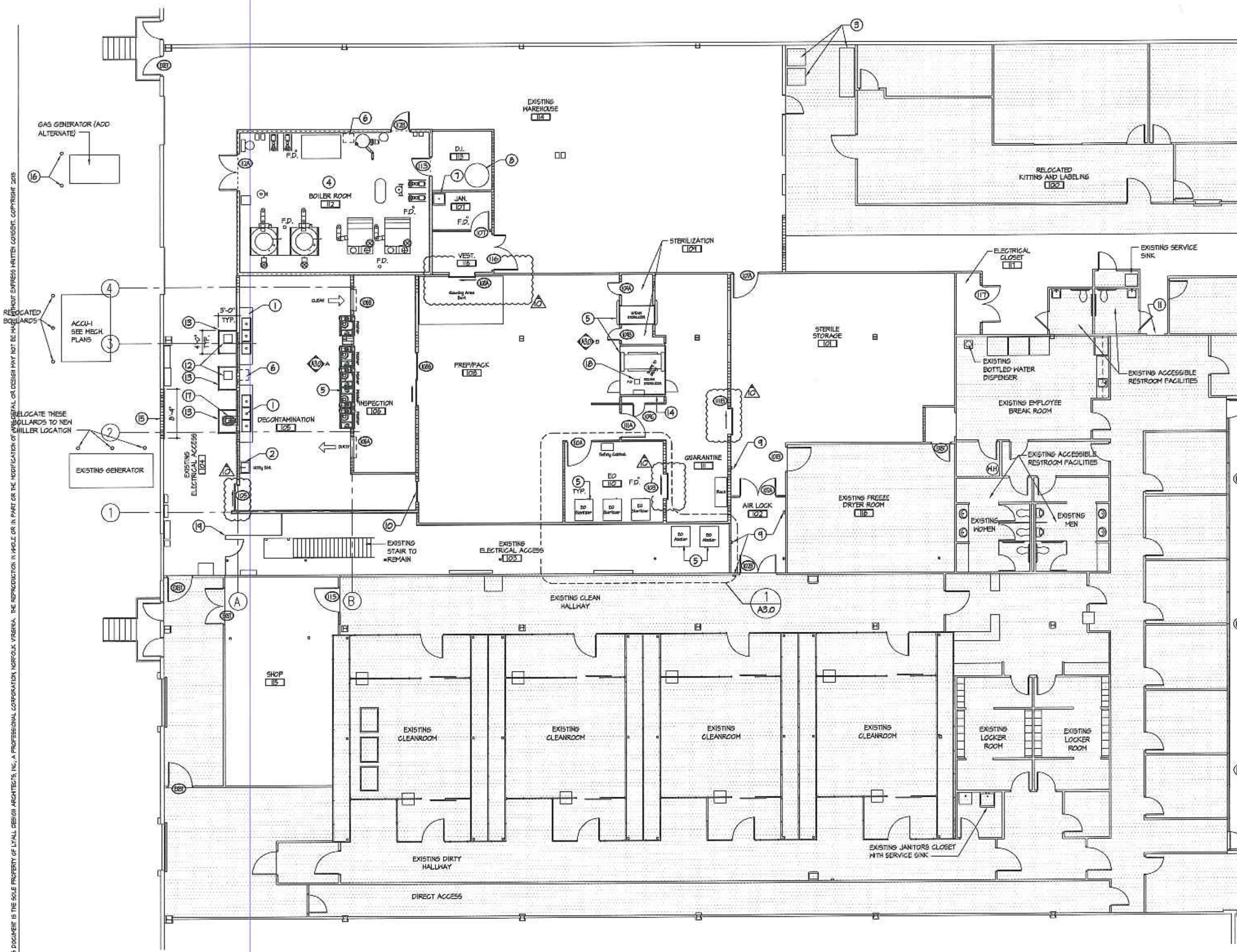
The EO Abator achieves at least 99.9% efficiency (time weighted average) in removing ethylene oxide (EO) during sterilization portion of cycle (when EO>100ppm) at normal operating temperatures and concentrations.

The EO Abator achieves at least 99.0% efficiency (time weighted average) in removing ethylene oxide (EO) during aeration portion of cycle (when EO<100ppm) at normal operating temperatures and concentrations.

The EO Abator should be tested for efficiency on a regular basis as required by local, state or federal regulations.

5733 Bayside Rd

5733 Bayside Rd, Virginia Beach, VA 23455



NEW WORK PLAN

1/8" = 1'-0"

1502.01 MP

NEW WORK FLOOR PLAN LEGEND

- NEW INTERIOR PARTITION
- EXISTING PARTITION
- NEW 2HR FIRE RATED ASSEMBLY
- INDICATES EXISTING AREAS TO REMAIN AND ARE NOT INCLUDED IN SCOPE OF WORK.

GENERAL NEW WORK NOTES

1. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE TO FACE OF FINISH FOR EXISTING AND FACE OF STUD FOR NEW CONSTRUCTION.
2. VERIFY DIMENSIONAL ACCURACY OF THE LAYOUT FOR ALL INTERIOR SPACES PRIOR TO EXECUTION OF NEW WORK. CONTACT ARCHITECT OF ANY DISCREPANCIES OR CONFLICTS FOR ADJUSTMENT AND/ OR CLARITY.
3. VERIFY EXISTING CONDITIONS WITHIN THE SCOPE WORK AND NOTIFY THE DESIGN TEAM OF ANY CONDITIONS, EQUIPMENT, FINISHES, ETC. THAT ARE IN CONFLICT WITH THESE CONSTRUCTION DOCUMENTS PRIOR TO EXECUTION OF THE WORK. IF DISCOVERY OCCURS DURING CONSTRUCTION, FOR UNFORESEEN AND/OR UNKNOWN CONDITIONS, NOTIFY THE DESIGN TEAM FOR RESOLUTION AND CLARITY.

NEW WORK NOTES ①

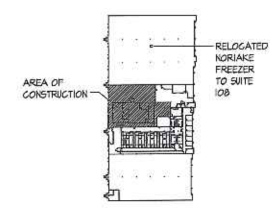
1. 3 BOWL DECONTAMINATION SINK. SEE PLUMBING DRAWINGS.
2. HAND SINK. SEE PLUMBING DRAWINGS.
3. RELOCATED FREEZERS.
4. SEE PME DRAWINGS FOR BOILER ROOM LAYOUT AND CLEARANCES.
5. NEW EQUIPMENT PROVIDED BY OWNER AND INSTALLED BY GENERAL AND MEP CONTRACTORS. SEE PME DRAWINGS FOR ELECTRICAL AND MECHANICAL REQUIREMENTS.
6. EYEWASH STATION PROVIDED BY AND INSTALLED BY OWNER
7. MOP SINK. SEE PLUMBING DRAWINGS.
8. D.I. WATER TANK. SEE PLUMBING DRAWINGS. OWNER FURNISHED, OWNER INSTALLED.
9. TOUCHLESS WALL SWITCH - TYPICAL OF 4. SEE ELECTRICAL DRAWINGS.
10. TEMPORARY INFILL PARTITION. SEE DETAIL 4/A1.3.
11. NEW FINISHED OPENING. HEAD HEIGHT AT 7'-0" A.F.F.
12. SOLIDS INTERCEPTOR. SEE PLUMBING DRAWINGS
13. PIPE BARRIER AROUND EQUIPMENT. SEE DETAIL 3/A3.0.
14. 89 3/4" WIDE X 99 3/4" LONG X 11 3/4" DEEP STERILIZER PIT. SEE DEPRESSED SLAB DETAIL ON SHEET A3.0.
15. INFILL EXISTING OPENING. OVERHEAD DOOR, DOCK LEVELOR AND SEALS TO REMAIN.
    INFILL TO BE:
    3 5/8" 16 ga. METAL STUDS AT 16" O.C.
    DENSGLAS SHEATHING
    EIFS DIRECT APPLIED
    EXTERIOR WALL BATT INSULATION
    5/8" IMPACT RESISTANT GWB ON INTERIOR - FINISHED AND PAINTED
16. 6" DIA. GALVANIZED STEEL PIPE BOLLARD - 4'-0" HIGH - PLATE MOUNTED.
17. FLUSHING RIM SINK - SEE PLUMBING DRAWINGS.
18. FLOOR SINK - SEE PLUMBING DRAWINGS.
19. RE-INSTALL EXISTING CHAIN LINK FENCE AND GATE. MODIFY AS REQUIRED.

LYALL DESIGN
ARCHITECTS
420 WORLD TRADE CENTER
NORFOLK VIRGINIA 23510
757 622 6306 FAX 757 622 6424

LifeNet Health

STERILE PROCESSING

5733 BAYSIDE ROAD
VIRGINIA BEACH, VIRGINIA



KEY PLAN

N.T.S.

KEY

PROJECT	1502.01
DATE	05-22-2015
REVISIONS	
△	06-03-2015
△	
△	06-05-2015
△	06-10-2015
△	08-31-2015

A1.1

NEW WORK PLAN

Safety Data Sheet

Document Group:	10-3495-8	**Version Number:**	55.01
Issue Date:	02/05/15	**Supercedes Date:**	02/19/14

SECTION 1: Identification

1.1. Product identifier
STERI-GAS BRAND CARTRIDGES 4-60, 4-100, 4-134, and 8-170

Product Identification Numbers
70-2007-2768-6, 70-2007-4128-1, 70-2007-4129-9, 70-2007-4130-7, 70-2007-4132-3, 70-2007-4133-1, 70-2007-4134-9, 70-2007-4135-6, 70-2007-4136-4, 70-2007-4137-2, 70-2007-4138-0, 70-2007-4140-6, 70-2007-4142-2, 70-2007-7124-7, 70-2007-7125-4, 70-2007-8376-2, 70-2007-8377-0, 70-2007-8378-8, 70-2007-8379-6, 70-2007-8380-4, 70-2007-8381-2, 70-2007-8382-0, 70-2007-8383-8, 70-2007-8384-6, 70-2007-8385-3

1.2. Recommended use and restrictions on use

Recommended use
Gas to sterilize in a 3M Steri-Vac(TM) Ethylene Oxide Sterilizer

1.3. Supplier's details

MANUFACTURER:	3M
DIVISION:	Infection Prevention Division
ADDRESS:	3M Center, St. Paul, MN 55144-1000, USA
Telephone:	1-888-3M HELPS (1-888-364-3577)

1.4. Emergency telephone number
1-800-364-3577 or (651) 737-6501 (24 hours)

SECTION 2: Hazard identification

2.1. Hazard classification
Flammable Gas: Category 1.
Gas Under Pressure: Liquefied gas.
Acute Toxicity (inhalation): Category 3.
Serious Eye Damage/Irritation: Category 2A.
Skin Corrosion/Irritation: Category 2.
Reproductive Toxicity: Category 2.
Carcinogenicity: Category 1A.
Germ Cell Mutagenicity: Category 1B.
Specific Target Organ Toxicity (single exposure): Category 1.
Specific Target Organ Toxicity (central nervous system): Category 3.
Specific Target Organ Toxicity (repeated exposure): Category 1.

Call a POISON CENTER or doctor/physician.
Get medical advice/attention if you feel unwell.
Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
Eliminate all ignition sources if safe to do so.

Storage:
Protect from sunlight. Store in a well-ventilated place.
Keep container tightly closed.
Store locked up.

Disposal:
Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

2.3. Hazards not otherwise classified
May cause frostbite.

SECTION 3: Composition/information on ingredients

Ingredient	C.A.S. No.	% by Wt
ETHYLENE OXIDE	75-21-8	100

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Remove person to fresh air. Get medical attention.

Skin Contact:
Immediately wash with soap and water. Remove contaminated clothing and wash before reuse. If signs/symptoms develop, get medical attention.

Eye Contact:
Immediately flush with large amounts of water for at least 15 minutes. Remove contact lenses if easy to do. Continue rinsing. Immediately get medical attention.

If Swallowed:
Rinse mouth. Do not induce vomiting. Get immediate medical attention.

4.2. Most important symptoms and effects, both acute and delayed
See Section 11.1. Information on toxicological effects.

4.3. Indication of any immediate medical attention and special treatment required
Not applicable

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media
In case of fire: Use a water spray or fog to extinguish, do not use straight streams. If water is not available use dry chemical, CO2, or foam to extinguish. Use a fire fighting agent suitable for the surrounding fire. Refer to other precautionary advice in SDS section 5.

5.2. Special hazards arising from the substance or mixture
Closed containers exposed to heat from fire may build pressure and explode.

Ingredient	C.A.S. No.	Agency	Limit type	Additional Comments
ETHYLENE OXIDE	75-21-8	Manufacturer determined	STEL:5 ppm	
ETHYLENE OXIDE	75-21-8	ACGIH	TWA:1 ppm	A2: Suspected human carcin.
ETHYLENE OXIDE	75-21-8	OSHA	TWA:1 ppm;STEL:5 ppm	29 CFR 1910.1047

ACGIH : American Conference of Governmental Industrial Hygienists
AIHA : American Industrial Hygiene Association
CMRG : Chemical Manufacturer's Recommended Guidelines
OSHA : United States Department of Labor - Occupational Safety and Health Administration
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

8.2. Exposure controls

8.2.1. Engineering controls
Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:
Indirect Vented Goggles

Skin/hand protection
Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing.
Gloves made from the following material(s) are recommended: Butyl Rubber

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:
Full facepiece supplied-air respirator

For questions about suitability for a specific application, consult with your respirator manufacturer.

Thermal hazards
Wear cold insulating gloves/face shield/eye protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

General Physical Form:	Gas
Specific Physical Form:	Compressed Gas
Odor, Color, Grade:	COLORLESS GAS IN NORMAL USE. SWEET ODOR AT 500-750 PPM
Odor threshold	*No Data Available*
pH	7

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation:
Toxic if inhaled.
Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.

May cause additional health effects (see below).

Skin Contact:
Frostbite: Signs/symptoms may include intense pain, discoloration of skin, and tissue destruction.

Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, dryness, cracking, blistering, and pain.

Eye Contact:
Frostbite: Signs/symptoms may include intense pain, clouding of the cornea, redness, swelling, and blindness.

Severe Eye Irritation: Signs/symptoms may include significant redness, swelling, pain, tearing, cloudy appearance of the cornea, and impaired vision.

Ingestion:
Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

Additional Health Effects:

Single exposure may cause target organ effects:
Central Nervous System (CNS) Depression: Signs/symptoms may include headache, dizziness, drowsiness, incoordination, nausea, slowed reaction time, slurred speech, giddiness, and unconsciousness.

Respiratory Effects: Signs/symptoms may include cough, shortness of breath, chest tightness, wheezing, increased heart rate, bluish colored skin (cyanosis), sputum production, changes in lung function tests, and/or respiratory failure.

Prolonged or repeated exposure may cause target organ effects:
Ocular Effects: Signs/symptoms may include blurred or significantly impaired vision.

Peripheral Neuropathy: Signs/symptoms may include tingling or numbness of the extremities, incoordination, weakness of the hands and feet, tremors and muscle atrophy.

Kidney/Bladder Effects: Signs/symptoms may include changes in urine production, abdominal or lower back pain, increased protein in urine, increased blood urea nitrogen (BUN), blood in urine, and painful urination.

Reproductive/Developmental Toxicity:
Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

Genotoxicity:
Genotoxicity and Mutagenicity: May interact with genetic material and possibly alter gene expression.

Carcinogenicity:
Contains a chemical or chemicals which can cause cancer.

Ingredient	CAS No.	Class Description	Regulation
ETHYLENE OXIDE	75-21-8	Grp. 1: Carcinogenic to humans	International Agency for Research on Cancer
ETHYLENE OXIDE	75-21-8	Known human carcinogen	National Toxicology Program Carcinogens

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
ETHYLENE OXIDE	Inhalation	respiratory system	Causes damage to organs	Human and animal	NOAEL Not available	
ETHYLENE OXIDE	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
ETHYLENE OXIDE	Inhalation	respiratory irritation	May cause respiratory irritation		NOAEL Not available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
ETHYLENE OXIDE	Inhalation	peripheral nervous system	Causes damage to organs through prolonged or repeated exposure	Human and animal	NOAEL Not available	
ETHYLENE OXIDE	Inhalation	kidney and/or bladder	May cause damage to organs though prolonged or repeated exposure	Mouse	LOAEL 100 ppm	14 weeks
ETHYLENE OXIDE	Inhalation	eyes	May cause damage to organs though prolonged or repeated exposure	Human and animal	NOAEL Not available	
ETHYLENE OXIDE	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Mouse	LOAEL 200 ppm	14 weeks
ETHYLENE OXIDE	Inhalation	endocrine system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 100 ppm	2 years
ETHYLENE OXIDE	Inhalation	liver	Some positive data exist, but the data are not sufficient for classification	Multiple animal species	NOAEL 841 ppm	not available
ETHYLENE OXIDE	Inhalation	hematopoietic system	Some positive data exist, but the data are not sufficient for classification	Mouse	NOAEL 250 ppm	10 weeks
ETHYLENE OXIDE	Inhalation	immune system	Some positive data exist, but the data are not sufficient for classification	Mouse	LOAEL 200 ppm	14 weeks
ETHYLENE OXIDE	Inhalation	heart	All data are negative	Monkey	NOAEL 100 ppm	2 years

Aspiration Hazard
For the component/components, either no data are currently available or the data are not sufficient for classification.

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information

Ecotoxicological information

Test Organism	Test Type	Result
Water flea, Daphnia magna	48 hours	137 mg/l
Fathead Minnow, Pimephales promelas	96 hours	84 mg/l
Goldfish, Carassius auratus	24 hours	90 mg/l

Please contact the address or phone number listed on the first page of the SDS for additional ecotoxicological information on this material and/or its components.

Chemical fate information

Test Type	Result	Protocol

15.4. International Regulations
Contact 3M for more information.

This SDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: Other information

NFPA Hazard Classification
Health: 3 **Flammability:** 4 **Instability:** 3 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

Document Group:	10-3495-8	**Version Number:**	55.01
Issue Date:	02/05/15	**Supercedes Date:**	02/19/14

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EtO Expected Emissions for LNH VA Beach Bayside Road due to 3M Sterilizer install

** Use max capacity of machine of 2 cycles/ day based on completed cycle development
** System will use only in-chamber aeration/ no separate aerator: reduced staff risk and improved work flow

Without the Proposed Controls:

EO lbs/hr per 8XL =	170g/load x 1 kg/1000 g x 2.2 lbs/kg x 2 cycles/day x 1 day/24 hours =	**0.031**	0.744
EO tons/yr per 8XL=	.031 lbs/hr x 24 hrs/day x 365 days/yr x 1 ton/2000 lbs =	**0.137**	
EO lbs/yr per 8XL =	tons/yr x 2000 lbs/ton =	**273**	

If controlled as proposed:

Use 99% removal efficiency.
3M materials state 99.9% removal for higher concentrations, then 99% for lower concentrations (see product description references)
Using more conservative number to remove need to prove concentration conditions to DEQ

EO lbs/hr per 8XL =	8XL output (above) x 1% =	0.0003	=	**0.000**
EO tons/yr per 8XL =	8XL output (above) x 1% =	0.0014	=	**0.001**
EO lbs/yr per 8XL =	8XL output (above) x 1% =	3	=	**3**